

CLAIMS

5 I Claim:

1. A method of producing an antiblock agent comprising surface treating inorganic minerals with a functionalized siloxane, or a polyether, or a functionalized polyether, or a carbon based polymer to produce an antiblock agent that adsorbs substantially reduced process aids.
2. The method of Claim 1 wherein the inorganic mineral is selected from a group consisting of talc, calcium carbonate, precipitated calcium carbonate, clay, and silica.
3. The method of Claim 2 wherein the inorganic mineral is talc.
4. The method of Claim 1 wherein the functionalized siloxane is selected from the group consisting of functionalized alkyl polydimethylsiloxane (carboxylate, amine, amide, thiol, sulfate, and phosphate) wherein carboxylate is preferred, Bis- (12-hydroxystearate) terminated polydimethylsiloxane, and Poly (Dimethylsiloxane)-Graft-Polyacrylates.
5. The method of Claim 4 wherein the functionalized siloxane is Bis-(12-hydroxystearate) terminated polydimethylsiloxane.
6. The method of Claim 1 wherein the silane is selected from the group consisting of octyltriethoxysilane, triamino functional silane, Bis-(gamma-trimethoxysilylpropyl) amine.
7. The method of Claim 6 wherein the silane is Bis-(gamma-trimethoxysilylpropyl) amine.
8. The method of Claim 4 wherein the functionalized siloxane has a structural formula of $[\text{Si}(\text{CH}_3)(\text{R})\text{-O-Si}(\text{CH}_3)(\text{R})\text{-O}]_n$ and wherein the molecular weight is from about 100 to about 100,000 a.m.u.
9. The method of Claim 6 wherein the silane has a structural formula of SiR_4 , where R is a functionalized alkyl group or functionalized alkoxy group.
10. The method of Claim 3 wherein the talc is treated with from about 0.1 percent to about 10 percent, based on weight of inorganic mineral, of the functionalized siloxane.
11. The method of Claim 10 wherein the talc is preferably treated with from about 0.1 percent to about 2.0 percent, based on weight of inorganic mineral, of the functionalized siloxane.
12. The method of Claim 3 wherein the talc is treated with from about 0.1 percent to about 10 percent, based on weight of inorganic mineral, of the silane.
13. The method of Claim 12 wherein the talc is preferably treated with from about 0.1 percent to about 2.0 percent, based on weight of inorganic mineral of the silane.

14. A functionalized siloxane antiblock and a silane antiblock produced according to the method of Claim 1.

15. A method of producing plastic products comprising using antiblock products of Claim 1 as a filler and polyolefin film additive.

16. The method of Claim 1 wherein the polyether is selected from the group consisting of poly(ethylene glycol), poly (ethylene glycol) Bis-(carboxymethyl) ether, poly (ethylene glycol) dimethyl ether, poly (ethylene glycol-400) distearate, and the like, and the functionalized polyether is selected from the group consisting of polyethylene glycol and other functionalized polyethers such as, for example, alkyl carboxylate, alkyl amine, alkyl amide, alkyl sulfate, alkyl thiol, alkyl sulfonate, alkyl phosphate, alkyl phosphonate, wherein alkyl carboxylate is preferred.

17. The method of Claim 1 wherein the polyether is polyethylene glycol (PEG) and the functionalized polyether is alkyl carboxylate functionalized PEG.

18. The method of Claim 18 wherein the polyether and functionalized polyether have a general structural formula of $H-(OCHR(CH_2)_xCHR_1)_n-OH$ and wherein the molecular weight is from about 100 to about 100,000 a.m.u.

19. The method of Claim 3 wherein the talc is treated with from about 0.1 percent to about 10 percent, based on weight of inorganic mineral, of the polyether or functionalized polyether.

20. The method of Claim 20 wherein the talc is preferably treated with from about 0.1 percent to about 2.0 percent, based on weight of inorganic mineral, of the polyether or functionalized polyether.

21. A polyether antiblock product or a functionalized polyether antiblock product produced according to the method of Claim 1.

22. A method of producing polyolefin film for use in packaging and film covering applications comprising using antiblock products of Claim 21.

23. The method of Claim 1 wherein the carbon based polymer is selected from the group consisting of functionalized polyolefins maleic acid/olefin copolymer, maleic acid/styrene copolymer.

24. The method of Claim 23 wherein the carbon based polymer is maleic acid/styrene copolymer.

25. The method of Claim 23 wherein the carbon based polymer has a general structural formula of



and wherein the molecular weight is from about 1,000 to about 10,000,000 a.m.u.

- 5 26. The method of Claim 3 wherein the talc is treated with from about 0.1 percent to about 10 percent, based on weight of inorganic mineral, of the carbon based polymer.
27. The method of Claim 26 wherein the talc is preferably treated with from about 0.1 percent to about 2.0 percent, based on weight of inorganic mineral, of the carbon based polymer.
- 10 28. A functionalized carbon based polymer antiblock produced according to the method of Claim 1.
29. A method of producing polyolefin film for use in packaging and film covering applications comprising using antiblock products of Claim 21.
- 15 30. A composition comprising an inorganic mineral core component selected from the group consisting of talc, calcium carbonate, precipitated calcium carbonate, clay, and silica and a surface treating component selected from the group consisting of functionalized siloxane, a silane, a polyether, a functionalized polyether, and a carbon based polymer to produce an antiblock agent that adsorbs
- 20 substantially reduced process aids.